



# Center for Coastal Studies Provincetown

ADMINISTRATIVE OFFICES  
115 Bradford Street  
Provincetown, MA 02657  
tel (508) 487-3622 fax (508) 487-4495

HIEBERT MARINE LABORATORY  
5 Holway Avenue  
Provincetown, MA 02657  
tel (508) 487-3623 fax (508) 487-4695

July 25, 2016

George Papadopoulos  
U.S. Environmental Protection Agency Region 1  
5 Post Office Square, Suite 100 (OEP06-1)  
Boston, Massachusetts 02109-3912

Dear Mr. Papadopoulos,

The Center for Coastal Studies (CCS) supports APCC's request that Entergy be required to install closed cycle technology to reduce thermal discharge into Cape Cod Bay as a condition of its new NPDES permit. CCS has conducted more than 30 years of continuous research on the distribution, behavior and food prey of North Atlantic right whales (NARWs), one of the most endangered whales in the world, in Cape Cod Bay and east of Cape Cod. The National Marine Fisheries Service estimates the NARW population at approximately 500 animals. During the 2012- 2013 field season, CCS documented sightings more than half of the known population of NARWs during aerial surveys of Cape Cod Bay.

Over the past five years the CCS has observed two significant changes. First, beginning in 2013 and continuing into 2015, more right whales occupied the western portion of Cape Cod Bay than in previous years.<sup>1</sup> This distribution contrasted with the typical (1998-2012) distribution of right whales that favored the eastern side of the Bay.<sup>2</sup> Secondly the CCS scientists observed that zooplankton abundance and distribution usually varies considerably from year-to-year and appears to be related to the variability of environmental parameters including but not limited to temperature, tides, currents, and storms. From the CCS's preliminary analyses of field data relatively warmer sea surface water temperatures, averaging greater than 2 degrees Centigrade above previous years' average, were recorded in 2012. CCS also documented early arrivals of NARWs into Cape Cod Bay during the 2012, 2013 and 2014 field seasons. Increases in water temperature likely resulting from a combination of heated effluent and increase in water temperature due to climate change may impact the distribution of zooplankton and therefore the feeding and distribution of right whales in Cape Cod Bay, a habitat that in recent winter seasons has supported a large portion of the remaining population of the species.

---

<sup>1</sup> Center for Coastal Studies. 2015. The Massachusetts Large Whale Conservation Program August 1, 2014 – July 31, 2015 Final Report. Department of Marine Fisheries, Commonwealth of Massachusetts Report (unpublished). 17 pp. Available from CCS, 5 Holway Avenue, Provincetown, MA 02657.

<sup>2</sup> Leeney, R.H., K. Stamieszkin, C. A. Mayo and M. K. Marx, 2009. Surveillance, Monitoring and Management of North Atlantic Right Whales in Cape Cod Bay and Adjacent Waters -2009 Final Report . Department of Marine Fisheries, Commonwealth of Massachusetts Report (unpublished). 324 pp. Available from CCS, 5 Holway Avenue, Provincetown, MA 02657

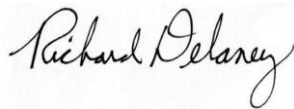
In 1994 the eastern portion of Cape Cod Bay was designated by the federal government as NARW critical habitat; in February 2016, this designation was expanded to include the western area of the Bay, as well as most of the Gulf of Maine and the calving areas in the South Atlantic. Federal scientists and managers determined that the “critical habitat expansion associated with feeding in the North and calving in the South is necessary for species recovery.”<sup>3</sup>

In addition to its long- term monitoring of NARWs, CCS has been monitoring the water quality of Cape Cod Bay for over a decade. During this time, noticeable changes were observed - water quality improvements in some areas and degradation in others. Many of the improvements are a result of the implementation of appropriate management strategies to protect or restore coastal resources. Likewise, many of the areas that are showing degradation are due to lack of necessary action to adequately protect these areas.

Although none of CCS’s regular monitoring stations are in the proximity of the Pilgrim Nuclear Power Station, nor are our monitoring efforts targeted towards documenting environmental changes that may result from the operation of Pilgrim, the CCS data do show that humans are having an impact on our coastal waters.

The CCS urges the U.S Environmental Protection Agency to apply the precautionary principle in its upcoming decision on renewal of the NPDES permit for Entergy’s Pilgrim nuclear power plant including a requirement to use a closed cycle cooling system to reduce impact on the Cape Cod Bay midwater ecosystem. If the permit is renewed, CCS recommends that extensive ecosystem monitoring be required and that an independent science advisory panel be established, with functions similar to those of the MWRA Outfall Monitoring Science Advisory Panel.

Sincerely,

A handwritten signature in black ink, reading "Richard Delaney". The signature is written in a cursive style with a large, stylized 'R' and 'D'.

Richard Delaney, President and CEO

---

<sup>3</sup>[http://www.greateratlantic.fisheries.noaa.gov/mediacenter/2016/january/25\\_noaa\\_expands\\_critical\\_habitat\\_for\\_endangered\\_north\\_atlantic\\_right\\_whales.html](http://www.greateratlantic.fisheries.noaa.gov/mediacenter/2016/january/25_noaa_expands_critical_habitat_for_endangered_north_atlantic_right_whales.html) accessed July 21, 2016